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Michel Bourin*

Neurobiology of Anxiety and Mood Disorders,
University of Nantes, 98, rue Joseph Blanchart,
44100 Nantes, France

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*Corresponding author: Michel Bourin, Neurobiology of Anxiety and Mood Disorders, University of Nantes, 98, rue Joseph Blanchart, 44100 Nantes, France, E-mail: Michel.bourin@univ-nantes.fr

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Review Article

Post-stroke depression and changes in behavior and personality

Abstract

Disorders now well identified and recognized by caregivers are observed post stroke especially fatigue and depression. The patient and especially his family must be informed, to reduce the destabilizing effect of finding a loved one different from that known before the stroke, especially when returning home. The disorders can change over time or be improved by medication. Sometimes, they will permanently alter the character or behavior of the person, psychological help to the patient and his relatives is often useful.

Introduction

In recent years researchers have been interested in the biological and clinical post-stroke consequences. Thus several types of personality or behavior changes can occur after a stroke. They are frequent and relatively unknown and therefore unrecognized. These disorders include: fatigue and fatigue; attention and concentration disorders; reduction or loss of motivation, and initiative; emotional lability, hyperemotivity; depression; anxiety attacks; cognitive deterioration or even dementia.

Fatigue

Fatigue is generally defined by weariness resulting from prolonged effort. This is a normal phenomenon when lassitude is proportional to the effort made. But fatigue can be pathological, and this is the case in post-stroke fatigue syndrome, with a feeling of weariness occurring for minimal or brief effort. This fatigue is expressed by fatigability (less resistance to effort), a need to lie down, take a nap, and go to bed earlier, and a lack of energy little improved by rest... This disorder is common: 50 to 70% of people who have had a stroke complain of abnormal fatigue nine months after a stroke. In young people, this figure reaches 80% [1]. It often persists over time: 50% of strokes aged 16 to 49 still complain of fatigue six years after stroke. This can alter the recovery of the professional activity.

The occurrence of fatigue syndrome after a stroke is related to the severity of the stroke, i.e. the intensity of the deficit and the resulting sequelae, but not only [2]. Thus, it is not uncommon to see this complaint after a minor stroke or even after a transient accident (whose symptoms will disappear in minutes). In the latter case, the fatigue seems more related

to the stress generated by the hospitalization, the prescribed examinations, the announced diagnosis, the fear of the recidivism [3].

Factors can promote the development of post-stroke fatigue [4]. Some are modifiable as undernutrition, anemia, some drugs ... Others are considered as non-modifiable: history of stroke, fatigue before the stroke, live alone ... The distinction between stroke-related fatigue and post-stroke depressive syndrome, which is also common, is sometimes difficult. Indeed, fatigue is a symptom of depression and depression is common after stroke.

The management of fatigue is based on the use of certain medications (such as serotonin reuptake inhibitors, a class of antidepressants often used after stroke to facilitate recovery). Other non-drug measures are also important: take rest time during the day, reorganize the daily routine (nap for example), gradual recovery of exercises and previous activity, keeping a diary (activities, sleep, schedules ...) [5].

An extremely important point is to provide information to patients and relatives about the possibility of this symptom, before discharge from hospital and return home, or during follow-up consultations if fatigue has occurred. It is suggested that low motor cortex excitability in the lesioned hemisphere is a viable therapeutic target in post-stroke fatigue [6].

Attention disorders

Attention and concentration disorders are also very commonly reported by people with stroke (80% to 90% of people with stroke are affected) [7]. In practice, people have the feeling of quickly "stalling" in a conversation, in the follow-up of a program, to carry out a task, or when the inattention is at

the origin of a “distractibility” leading to a feeling of memory loss (but in fact the memory is not reached, it is just a difficulty to fix what has just been said). These disorders can be improved by drugs such as serotonin reuptake inhibitors, or by simple means such as note taking. In some cases, a loss of motivation or initiative may occur after a stroke, which can interfere strongly with activities of daily living and impose a significant presence on loved ones. This may be the consequence of stroke but is frequently related to the involvement of certain brain regions such as the thalamus, the frontal region, the right hemisphere

Mood disorders and depression

Mood disorders are sometimes present, which can induce a depression or conversely a euphoric state. More often, there is hyperemotivity or emotional lability: people then complain of excessive expression of feelings (easy crying, for example). This is to be differentiated from “spasmodic laughing and crying”, rarely encountered in practice, a situation in which spastic hypertonia will cause a laugh or a reflex cry, outside of any emotional context [8]. These disorders are often greatly enhanced by serotonin reuptake inhibitors.

In other cases, relatives of the patient testify to an emotional blunting (relative indifference to emotions), aggressive behaviors, an intolerance to frustration or, conversely, excessive tolerance of situations that were previously considered inadmissible.

There are some difficulties to make the diagnosis of depression in the context of patients with stroke recent or after-effects of stroke. The existence of disturbances language and especially severe aphasia can find it difficult to look for the symptoms of depression. Another difficulty is to take other neurological symptoms for depression [9,10]. In particular, the emotional lability that complicates some stroke can be confused, first approach, with post-stroke depression. Detailed assessment of mood and inappropriateness emotional behavior, allow to differentiate these entities. Some states of apathy complicating stroke can also borrow part of depressive symptomatology [11]. The absence of sadness, the existence of a frontal attack and executive function disorders are in favor of apathy. Finally, there is a risk of ignoring depression by reporting possible mood disorders to the difficult situation experienced by the patient. To avoid this, the systematic use of a screening procedure in rehab centers is widely recommended. Several tools to search for depressive symptoms were used and were shown appropriate [12,13].

Over the last 15 years, large-scale studies have attempted to specify the prevalence of post-stroke depression from studies conducted during initial hospitalization, during rehabilitation stays, but also after returning home. If the figures advanced vary from 15 to 65%, the synthesis of these studies leads us to consider that about a third of the patients who presented a stroke develop a depression in the following year [14], in the systematic review starting from 51 studies published between 1977 and 2002, the estimated rate of depression after stroke was 33% (95% CI: 29–36) [2]. It should be noted that most of

these studies excluded patients with aphasia or prior cognitive impairment, given the obvious diagnostic difficulties.

The literature is not homogeneous with regard to the most at-risk period of onset of depression. A number of longitudinal studies suggested that the incidence was higher in the first month than in the rest of the first year [15]. This early onset of depression may, by delaying rehabilitation, have a significant impact on the distant effects of stroke [14].

- The risk of depression, once returned to active life, has been highlighted by other studies [3] and corresponds to a reality repeatedly verified by the practitioners in charge of the follow-up of stroke patients.
- A few studies have attempted to quantify the severity of depression: using the DSM-IV criteria for major and minor depression, their frequency appears to be approximately equivalent, i.e. approximately 15% for each of the two presentations [14].
- In addition, there is a close relationship between the presence of anxious symptomatology and the occurrence of depression after a stroke [17].
- Finally, post-stroke depression also has close and yet poorly understood links to post-stroke fatigue.

In 2008, the Cochrane Stroke Group retained 16 studies of treatment for post-stroke depression, with drug benefit in all therapeutic classes (OR: 0.47, 95% CI: 0.22–0.98).), but at the cost of an equally significant increase in reported side effects (OR = 1.96, 95% CI: 1.19–3.24). The authors recommend great caution in the use of antidepressant treatment after stroke, for fear of epileptic seizures, falls and confusion in these weakened patients [18].

Other behavioral disorders

Could sometimes appear after a stroke: attacks of anxiety (panic attacks lasting a few minutes or hours), phobias (space, store, vertigo ...), manic states in combination with aphasia (reached of the left hemisphere) or a feeling of depersonalization and strangeness associated with neglect on the left side (in attacks of the minor hemisphere, i.e. the right).

Finally, stroke can cause intellectual function disorders (cognitive functions) and memory problems that will affect the patient’s autonomy and cause dementia. The frequency of post-stroke dementia is estimated at 20%, up to 40% in case of recurrence. These changes in stroke behavior or personality will usually have repercussions on relatives, relationships and social activities [19]. So, a survey showed that a stroke:

Causes a strong psychological impact within the family: 80%;

Creates a new family organization: 70%;

Reveals unsuspected resources: 70%

Bring the couple closer: 74%;

Is a drama that the couple never recovers: 26%;

Sign the end of future projects: 36%.

Stroke causes an impact with friends with expressions of sympathy (80%), or loss of many friends (28%).

Pre-stroke activities are often stopped: cultural recreation (25%), gardening (25%), walking, cycling (21%).

Conclusion

These personality and behavioral disorders are now well identified and recognized by caregivers. The patient and especially his family must be informed, to reduce the destabilizing effect of finding a loved one different from that known before the stroke, especially when returning home. The disorders can change over time or be improved by medication. Sometimes, they will permanently alter the personality or behavior of the person, psychological help to the patient and his relatives is often useful. Depression is frequent but of minor severity. It compromises the functional prognosis and increases the risk of morbidity and mortality. Its specificity lies in a set of semiological characteristics: early onset after stroke, link with certain encephalic localizations. It should be sought especially at the early stage, during regular interviews with the family, and before any change in the patient's psychism.

On the other hand, depression is the most common affective disorder after a stroke. The diagnosis of post-stroke depression requires an accurate assessment, based on clinical history as well as additional clinical examinations. Post-stroke depression is considered early when it appears within the first three months after a cerebral infarction or hemorrhage, and late after that period. The symptoms of depressive illness are of three types: affective, somatic and cognitive. Affective symptoms are generally: reduced emotional reactivity, anhedonia, social isolation and sadness. Somatic symptoms include fatigability, constipation, appetite changes (anorexia and hyperphagia), alterations in sleep-wake rhythm and decreased libido. On the cognitive level, there are difficulties of concentration, feelings of despair, guilt, uselessness. Disturbances in sensory perception and hallucinations may also appear. SSRIs appear to be the most effective antidepressants but the level of evidence regarding the effects of treatment in both depressed and non-depressed patients is very low. Large-scale epidemiological but also therapeutic placebo-controlled studies are needed.

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